



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/616,304

07/10/2003

Tetsuo Morita

50212-515

1625

7590

02/08/2006

MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

ROSE, HELENE ROBERTA

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/616,304	Applicant(s) MORITA, TETSUO	
	Examiner Helene R. Rose	Art Unit 2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10 July 2003</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. Claims 1-9 have been presented for examination.
2. Claims 1-9 have been rejected.

Information Disclosure Statement

3. The non-patent literature cited on the information disclosure statement filed on 7/10/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. However, the examiner has considered US PG Publication No. 2001/0019310 and US PG Publication 2002/0107968.

Claim Rejections – 35 U.S.C 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claim 5 is rejected under 112, second paragraph. Claim 5, recites the limitation “ if the size of the segment is nor an integer multiplication of the size fixed block”. The term “if” is considered to be an alternative language. Therefore, it's unclear to the examiner on how to interpret the term “if” and how it is applied to the claim limitation.

Claim Rejections – 35 U.S.C – 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Horn et al (US Publication No. 2002/0107968).

Claims 1,2, and 7:

Regarding claims 1, 2 and 7, Horn teaches a transmission data generation equipment (page 3, section [0017], wherein generating output symbols for each block in the order, and transmitting the output symbols for each block in the order and transmitting the output symbols on the corresponding one ore more channels, Horn), comprising:

time calculation (Figure 4, diagram 425, Horn) means which sets the size of a fixed block based on the overhead (page 5, section [0062], wherein the size of each block determines the efficiency of the chain reaction encoder and decoder where in generally the trade off between the overhead and the encoding/decoding speed for a fixed number of symbols, wherein the encoding/decoding speed in Mbps increases as the symbol size increases in which the amount of overhead, i.e., the number of extra output symbols that the decoder should collect greater than the block size, is proportionately smaller for larger blocks, and to minimize the required overhead the blocks should therefore be as large as possible, and for a fixed block size, increasing the symbol size improves encoding/decoding speed at the cost of overhead performance, Horn),

calculates the playout time of the fixed block based on the size of said fixed block (page 9, section [0093], wherein to calculate the value $B(I,F)$, for the current output symbol, and wherein the calculator calculates the value $B(I,F)$ of the output symbol being calculated based on a value fraction, Horn),

calculates the playout time (Figure 1, diagrams 120(1) and 120(m), Horn) of a segment for each segment of the contents based on the playout time of said fixed block (page 13, section [0132], wherein client downloads information about block i at time t , and define $T(i)$ to be time and block I begins playing out, where again time is measured relative to the client, where time zero is when the client initiates the session and the download starts, and given a fixed maximum client download rate R_d , the goal of the MOD system is to achieve uninterrupted play out of the media object, Horn), and

calculates the transmission time of a segment based on the calculated playout time of the segment (page 13, sections [0133] [0136], wherein the constraint in equation three is due to the fact that the client should have finished downloading block i by the time it needs to play it out, i.e., by the time blocks 0, . . . , $i-1$ have completed playing out, Horn);

division means (page 5, section [0057], wherein a media object file may be divided into sequentially numbered blocks, where the blocks index indicates the temporal position of each block in playing out the media content, Horn) which divides the contents into segments according to the transmission time of the segment calculated by said time calculation means (page 7, section [0078], wherein the blocks or set of blocks are chosen to generate an output symbol will be referred to as the blocks associated with that output symbol, and page 7, section [0079] , wherein the block encoder provides the output symbol to a transmit module and the transmit module may also provide the key of each such output symbol and the set of blocks associated with each output symbol, and page 8, section [0082], wherein the receive module

receives the output symbols and the receive module may use timing information in order to calculate the key or the block, Horn) and divides said divided segments into block (page 7, section [0078], wherein each segment of the media object may be logically divided into plurality of disjoint blocks by the media block scheduler, in which segment is defined as dividing into segments, Horn); and

meta contents (page 5, section [0059], wherein the client stores the packets for a block as they arrive and waits for the entire block as wherein meta contents are the packets, Horn) means for converting (page 11, section [0112], wherein to convert from megabits to megabytes, divided by eight, Horn) the contents into meta contents by adding the overhead for each block divided by said division means (page 19, section [0205], wherein the client storage requirement is limited, it may be preferable to increase the server bandwidth and the total number of segments in the media object, and place an upper limit on the segment size, and the server bandwidth can be further divided so that a segment finishes downloading as late as possible before it is scheduled to play out, Horn),

wherein said time calculation means sets the overhead for each segment based on the overhead in said fixed block (page 5, section [0062], wherein the amount of overhead, i.e., the number of extra output symbols that the decoder should collect greater than the block size is proportionately smaller for larger blocks and for a fixed block size increasing the symbol size improves encoding/decoding speed at the cost of overhead performance and page 14, section [0157], Horn).

Claims 3 and 8:

Regarding claims 3 and 8, Horn teaches wherein said time calculation means sets the size of said fixed block so that the overhead becomes a small value (page 5, section [0062], wherein the amount of overhead as in the number of extra output symbols that the decoder

Art Unit: 2163

should collect greater than the block size is proportionately smaller for the larger blocks, wherein overhead is defined to be work or information that provides support possibly critical support for a computing process, and page 19, section [0206], wherein the block sizes are fixed, then the segment sizes can be adjusted so that segment contains an integer number of blocks by decreasing or increasing the segment size, Horn).

Claims 4 and 9:

Regarding claims 4 and 9, Horn teaches wherein when the size of a segment is not an integer multiplication of the size of the fixed block (page 13, section [0137], wherein the startup latency number m to be the number of blocks that the client plays out in T_s seconds, i.e., $m = T_s / T_f = B_{min} \cdot T_s / R_p$, in which notes that m need not be an integer, Horn),

said time calculation means determines the playout time of an variable block which cannot be divided by said fixed block (page 17, section [0184], wherein he VRFS scheduler may become less efficient since the variable rate fixed segment scheduler is not guaranteed to download at the maximum download rate R_d , wherein for equal sized segments B_{min} , $m=2$, $n=5$ and $R_d=5R_p/6$, Equation 6 and Equation 7 are satisfied, but the VRFS scheduler cannot schedule the five segments to be downloaded to achieve uninterrupted play out at the client, and wherein the divided is displayed in the equation, Horn) and the overhead in the variable block (page 14, section [0150], wherein overhead is required to resemble the blocks in the segment and $W_{ps}(N(i))$ is chosen so that each segment can be reassembled at the client with high probability, where in overhead is interpreted to be an enhanced to an existing application, Horn), and

sets said overhead for each segment based on the overhead in said fixed block and the overhead in the variable block of said segment (page 5, section [0062], wherein the size of each block determines the efficiency of the chain reaction encoder and decoder where in generally

the trade off between the overhead and the encoding/decoding speed for a fixed number of symbols, wherein the encoding/decoding speed in Mbps increases as the symbol size increases in which the amount of overhead, i.e., the number of extra output symbols that the decoder should collect greater than the block size, is proportionately smaller for larger blocks, and to minimize the required overhead the blocks should therefore be as large as possible, and for a fixed block size, increasing the symbol size improves encoding/decoding speed at the cost of overhead performance, Horn).

Claim 5:

Regarding claim 5, Horn teaches the transmission data generation method, further comprising:

a fixed block transmission time calculation step of calculating the transmission time of said fixed block based on the playout time of said fixed block (page 9, section [0093], wherein to calculate the value $B(I,F)$, for the current output symbol, and wherein the calculator calculates the value $B(I,F)$ of the output symbol being calculated based on a value fraction, Horn¹);

a fixed block count calculation step of calculating the number of fixed blocks included in the segment for each segment of the contents based on the transmission time of said segment (page 13, section [0132], wherein client downloads information about block i at time t , and define $T(i)$ to be time and block i begins playing out, where again time is measured relative to the client, where time zero is when the client initiates the session and the download starts, and

¹ The Examiner interprets the terms “transmission time” and “playout time” to be same functionality in which the method of both consist of carrying data between the server and the client, and determining the rate/calculating to serve each segment as to when client may start receiving and a time at which the client may stop receiving, but using different wording to address the claim limitations. Claim 5 can also read on independent claims 1,2, and 7. For example: Claim 5 states: calculating the number of fixed blocks included in the segment for each segment of the contents based on the **transmission time** of said segment and wherein Claim 7 states: calculates the playout time of fixed block based on the size of said fixed block and calculates playout time of a segment for each segment of contents based on the calculated **playout time** of the segment.

given a fixed maximum client download rate R_d , the goal of the MOD system is to achieve uninterrupted play out of the media object, Horn) and the transmission time of said fixed block (page 4, section [0052], wherein the server and the client are more of a constraint on the transmission stream as in the maximum rate that the client can download a media object, R_d , may be constrained and may be fixed for a particular media object as stated on page 4, section [0054], Horn); and

total fixed block playout time calculation step of calculating the playout time (Figure 1, diagrams 120(1) and 120(m), Horn) of all the fixed blocks included in the segment for each segment of the contents based on said calculated number of fixed blocks and the playout time of said fixed block (page 13, section [0132], wherein client downloads information about block i at time t , and define $T(i)$ to be time and block i begins playing out, where again time is measured relative to the client, where time zero is when the client initiates the session and the download starts, and given a fixed maximum client download rate R_d , the goal of the MOD system is to achieve uninterrupted play out of the media object, Horn),

wherein in said playout time calculation step, the playout time of all the fixed blocks included in said segment is regarded as the playout time of the segment for each segment of the contents if the size of the segment is an integer multiplication of the size of the fixed block (page 18, section [0200], wherein each new segment is scheduled to be downloaded at an aggregate rate of $c \cdot R_d/r$, where c is an integer between 1 and r in which multiplication is represented by a dot, Horn), and

calculates the transmission time of a segment based on the calculated playout time of the segment (page 13, sections [0133] [0136], wherein the constraint in equation three is due to the fact that the client should have finished downloading block i by the time it needs to play it out, i.e., by the time blocks 0, . . . , $i-1$ have completed playing out, Horn); and

if the size of the segment is not an integer multiplication of the size of the fixed block (page 13, section [0137], wherein the startup latency number m to be the number of blocks that the client plays out in T_s seconds, i.e., $m = T_s / T_f = B_{min} \cdot T_s / R_p$, in which notes that m need not be an integer, Horn),

the playout time of the segment is calculated based on the playout time of an variable block of said segment (page 16, section [0175], wherein media object scheduler using variable fixed rate segment size to determine the rate and schedule pair for each segment in a media object, and its downloaded to play it out uninterrupted using a calculation based, Horn) and the playout time of all the fixed blocks included in said segment (page 16, section [0176], wherein $N_s(i)$ aggregate size of the segments, and the play out rate is R_b Mbps then segment $S(i)$ begins playing out $N_s(i) / R_p$ seconds and also see Figure 13, all features wherein the process is described in further details, Horn).

Claim 6:

Regarding claim 6, Horn teaches wherein in said variable block setting step, the product of the playout time of said variable block (page 17, section [0182], wherein the steps of the playing out segment begins and playing out set completes is defined and wherein the product is interpreted to be the result of the required server bandwidth is $R_s = 21.95$, Horn) and the overhead in said variable block is determined for each segment of the contents using the playout time of all the fixed blocks included in said segment and transmission time of said segment (page 5, section [0062], wherein the size of each block determines the efficiency of the chain reaction encoder and decoder where in generally the trade off between the overhead and the encoding/decoding speed for a fixed number of symbols, wherein the encoding/decoding speed in Mbps increases as the symbol size increases in which the amount of overhead, i.e., the number of extra output symbols that the decoder should collect greater than the block size,

Art Unit: 2163

is proportionately smaller for larger blocks, and to minimize the required overhead the blocks should therefore be as large as possible, and for a fixed block size, increasing the symbol size improves encoding/decoding speed at the cost of overhead performance, Horn), and

the payout time of said variable block (page 5, section [0058], wherein playing out the block and wherein size and rate of each block is served, Horn) and the overhead in said variable block are determined from said product using a predetermined numerical analysis method (pages 12, section [0131], wherein pseudo segment is interpreted to be the overhead as overhead is defined to be a use of resources performing a particular feature and wherein a pre-downloaded segment performs a numerical analysis, in which numerical analysis is interpreted to be mainly a real variable or, numerical linear algebra over the real or complex fields, providing the solution of differential equations, Horn)

Prior Art of Record

1. Horn et al (US PG Publication US 2002/0107968) discloses a media object is scheduled for transmission between a server and a client, wherein the media object is partitioned into segments of blocks, each block is a unit of media for which a client will wait to receive an entire block before playing out the block, and wherein each segment includes an integer number of blocks.


Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene R. Rose whose telephone number is (571) 272-0749. The examiner can normally be reached on 8:00 am - 4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on (571) 272-4023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Helene R Rose
Technology Center 2100
February 1, 2006


Sana AL-Hashemi